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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XG818

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to U.S. Navy Target and Missile Launch Activities on San Nicolas Island, California

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to the U.S. Navy (Navy) to incidentally harass, by Level B harassment only, marine mammals during target and missile launch activities on San Nicolas Island (SNI), California for the Naval Air Warfare Center Weapons Division (NAWCWD), Point Mugu Sea Range (PMSR). The Navy's activity is considered a military readiness activity pursuant to MMPA, as amended by the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2004.

DATES: This Authorization is effective from June 12, 2019 through June 11, 2020.

FOR FURTHER INFORMATION CONTACT: Stephanie Egger, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal->

protection-act. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

The NDAA for FY 2004 (Pub. L. 108–136) removed the “small numbers” and “specified geographical region” limitations indicated above and amended the definition of “harassment” as it applies to a “military readiness activity.” The activity for which incidental take of marine

mammals is being requested addressed here qualifies as a military readiness activity. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On December 13, 2018, NMFS received a request from the Navy for an IHA to take marine mammals incidental to target and missile launch activities on SNI. The application was deemed adequate and complete on April 10, 2019. The Navy's requested take of California sea lions (*Zalophus californianus*), harbor seals (*Phoca vitulina*), and northern elephant seals (*Mirounga angustirostris*) by Level B harassment only. Neither the Navy nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS has previously issued incidental take authorizations to the Navy for similar launch activities since 2001 with the current authorization in effect until June 3, 2019 (79 FR 32678; June 6, 2014 and 79 FR 32919; June 9, 2014).

Description of the Specified Activity

The Navy plans to continue a target and missile launch program from two launch sites on SNI for testing and training activities associated with operations on the NAWCWD PMSR. SNI is one of the eight Channel Islands in the Southern California Bight, located about 105 kilometers (km) southwest of Point Mugu. The missiles are launched from one of several fixed locations on the western end of SNI. Missiles launched from SNI fly generally west, southwest, and northwest through the PMSR. The primary launch locations are the Alpha Launch Complex, located 190 meters (m) above sea level on the west-central part of SNI and the Building 807 Launch Complex, which accommodates several fixed and mobile launchers, at the western end

of SNI at approximately 11 m above sea level. The Point Mugu airfield on the mainland, the airfield on SNI, and the target sites in the PMSR will be a routine part of launch operations.

Many of the beaches and rocky outcroppings around the perimeter of SNI are pinniped resting, molting, or breeding sites. The Alpha Launch Complex is approximately 2 km from the nearest beach where pinnipeds are known to routinely haul out. The Building 807 Launch Complex is 30 m from the nearest pinniped haulout.

Missiles vary from tactical and developmental weapons to target missiles used to test defensive strategies and other weapons systems. Some launch events involve a single missile, while others involve the launch of multiple missiles in quick succession. The Navy could conduct up to 40 missile launch events from SNI, but the total may be less than 40 depending on operational requirements. Launch timing will be determined by operational, meteorological, and logistical factors. Up to 10 of the 40 launches may occur at night, but this is also dependent on operational requirements and only conducted when required by test objectives. Airborne sound from these launch events may result in take of pinnipeds that are hauled out on SNI, by Level B harassment only. All flights over SNI would be subsonic; therefore, there would be no sonic booms that could affect pinnipeds hauled out at sites on SNI.

Missiles are rocket-propelled weapons designed to deliver an explosive warhead with accuracy at high speed. Missiles vary from small tactical weapons that are effective out to only a few hundred feet to much larger strategic weapons that have ranges of several thousand miles. Almost all missiles contain some form of guidance and control mechanism and are therefore often referred to as guided missiles. Guided missiles have four system components: targeting or missile guidance, flight system, engine, and warhead. A guided missile powered along a low, level flight path by an air-breathing jet engine is called a cruise missile. An unguided military

missile, as well as any launch vehicle, is usually referred to as a rocket. Tactical guided missiles are generally categorized according to the location of the launch platform and target and include: air-to-air, air-to-surface, surface-to-air, anti-ship, and anti-tank (or assault).

Further details of the Navy's launch activities are provided in the **Federal Register** notice for the proposed IHA (84 FR 18809; May 2, 2019).

Comments and Responses

A notice of NMFS's proposal to issue an IHA to the Navy was published in the **Federal Register** on May 2, 2019 (84 FR 18809). That notice described, in detail, the Navy's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission (Commission). For full details of the Commission's comments, please see their letter, which is available online at:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities>. Summaries of the Commission's comments, and our responses, are provided below.

In-air thresholds

Comment: The Commission comments on many aspects of this IHA related to in-air thresholds. The Commission claimed that the thresholds for TTS/PTS stipulated in the Navy's *Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III) Technical Report* (U.S. Department of the Navy, 2017) were incorrect and that revised thresholds presented in Southall *et al.*, 2019 should be used. The Commission comments that the historical behavioral thresholds of 90 dB SPL for harbor seals/100 dB SPL for all other pinnipeds are what should be used for this IHA rather than the proposed 100 dB SEL value for all pinnipeds.

Response: Upon review of the Commission's comments and the two sets of thresholds, as well as additional communication with the authors of Southall *et al.*, 2019, we have determined that the Navy's thresholds in *the Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III) Technical Report* (U.S. Department of the Navy, 2017) for TTS/PTS are correct and, in fact, errors have been found in Southall *et al.*, 2019. (The authors plan to address these errors in the publication). In addition, the issues the Commission points out regarding in-air behavioral thresholds are not applicable, as the estimated takes are based on the last three years of pinniped observation from Navy's monitoring reports and not directly based on specific in-air thresholds. The beaches that the Navy surveys are largely based on where sound received is expected to reach 100 dB SEL or greater and where animals are reacting to launch noises. In the case of harbor seals, the Navy is already monitoring beaches where sound levels are less than 100 dB SEL and often under 90 dB SPL (site O – Phoca Reef and Pirates Cove). The Navy is monitoring at site O because oftentimes the harbor seals are not hauled out on the western end of SNI on the typically monitored beaches during launch events. The Navy is cognizant of the fact that some harbor seals are reacting to sound levels lower than 90 dB SPL. Accordingly, the Navy is monitoring those pinnipeds and requesting additional take by Level B harassment to account for this potential (see *Estimated Take* section).

In addition, the Navy has previously surveyed other parts of SNI to determine if pinnipeds are reacting in response to launch events. The Navy conducted surveys of the eastern end of SNI and did not find pinnipeds reacting to launch events. The Navy has also conducted surveys on adjacent beaches to those that are typically monitored and did not find pinnipeds that reacted to launch events (*e.g.*, Coast Guard Beach in the Navy's 2015 monitoring report).

In summary, upon review of new information suggested by the Commission, the TTS/PTS thresholds originally proposed for use remain the best available scientific information. We also believe that the behavioral threshold proposed for use in this context is appropriate; however, the specific threshold discussed is of less importance here because the actual amount of authorized takes by Level B harassment are based on actual field monitoring conducted by the Navy of the pinniped haulout areas that could potentially be affected by noise from launch events.

Level B Harassment takes

Comment: The Commission recommends that NMFS use its standard tiered scale for determining when disturbance of hauled pinnipeds equates to Level B harassment for all activities, *i.e.*, based on animals moving at least two body lengths rather than animals moving at least 10 m, as was proposed for the Navy's launch activities at SNI.

Response: The Navy's activities are considered military readiness activities, for which a different definition of Level B harassment is applied. For military readiness activities, the MMPA defines "harassment" as: (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered (Level B harassment). The Navy has developed a slightly different version of the criteria for determining when behavioral response of a hauled pinniped rises to the level of harassment, as is appropriate for use with the definition of Level B harassment associated with military readiness activities. NMFS has determined that this version,

which has been used in prior incidental take authorizations associated with launch activities on SNI (79 FR 32678; June 6, 2014), is appropriate for evaluating Level B harassment in association with this specified activity. NMFS may re-evaluate these criteria with the Navy for any subsequent applications we receive from for these activities.

Comment: The Commission comments that previous Navy monitoring reports from 2014–17 have indicated that for all but one launch 100 percent of the hauled out harbor seals within the view of the monitoring camera responded to the launch and, because of this, NMFS’s presumption that only 2.39 harbor seals are taken per launch is an underestimate.

Response: In general, in recent years, few harbor seals have been observed during launch events. NMFS’ take estimate of 3 (rounded from 2.39) harbor seals per launch is an average of animals taken during the 2015-2017 monitoring seasons. The average was calculated from the Navy’s total of taken harbor seals during each launch. Using observations to determine a take estimate, especially in cases where so few numbers of harbor seals were present, is an appropriate use of available data. This average take estimate per launch is not the authorized value for a single launch event. The number of authorized launch events (40) is multiplied by 3 harbor seals (2.39 harbor seals conservatively rounded up) to obtain a take estimate of 120 instances of take for harbor seals by Level B harassment which can be distributed in varying ways across the total number of launch events.

There have been cases where the Navy observed harbor seals outside of the field of view in the camera and assumed they were taken by the launch. In the 2014 monitoring report, the Navy considered all 40 harbor seals observed as taken during a launch event even though they were not in the view of the camera during the launch, but observed during the visual count before the launch. Had NMFS used these 2014 monitoring results in its calculations, then we would

have also considered these animals as taken even though they were not in the view of the camera. NMFS did not use this year in its take calculations because harbor seals have not been observed in this area during launch events over the last three years.

Comment: The Commission commented that NMFS did not authorize enough take for pinnipeds based on a variety of factors including the following: (1) the Commission assumes a 100-percent response rate (for harbor seals); (2) the Commission states that additional animals outside the regularly monitored areas should be assumed to be taken (harbor seals); and (3) the Commission's recommendation to use NMFS's non-military readiness pinniped disturbance criteria rather than the military readiness disturbance criteria developed by the Navy. The Commission recommends that NMFS authorize additional Level B harassment takes for all species.

Response: For harbor seals, NMFS believes the amount of Level B harassment takes suggested as appropriate by the Commission would be an overestimate based on previous observations during Navy's launch events. Before the launch events, the Navy monitors several sites around the western end of SNI to determine where pinnipeds are hauled out and what species are on the beaches. During this pre-launch monitoring, harbor seals are frequently not present. That said, NMFS understands the Commission's concerns, but taking a peak count in July and applying it over the entire year for every launch is not reasonable. To account for the possibility of some harbor seals hauling out and then reacting to a launch in a way equivalent to a take, NMFS has adjusted the take estimate from 120 to 480 harbor seals. Instead of taking an average per launch, the revised take estimate is developed by taking the total number of takes (12) and multiplying that by 40 launch events for a total of 480 instances of take by Level B harassment for harbor seals. NMFS believes that the number of authorized take is adequate and

sufficient for California sea lions and elephant seals. These are based on animals taken by Level B harassment per the Navy's monitoring reports from 2015-2017.

Mitigation and Monitoring Measures

Comment: The Commission commented on a mitigation measure that was in the Navy's application, but not included in the proposed IHA. The mitigation measure required that the Navy avoid launching multiple missiles in quick succession over haulout sites, especially when young pups are present. The Commission recommends that NMFS require the Navy to avoid launching multiple missiles in quick succession over haulout sites, especially when young pups are present as this mitigation measure was previously required in prior incidental take authorizations for this activity.

Response: Before the proposed IHA was published, the Navy indicated that it could not fulfill the mitigation measure and had mistakenly included the measure in its application. The Navy indicated that it is already limiting or avoiding launches during much of the year during the pupping season for pinnipeds and could not be limited further due to practicability and mission objectives. Therefore, the mitigation measure was not included in the proposed IHA.

Comment: The Commission commented that NMFS (1) enlist its technical experts to review the proposed acoustic monitoring plan, including the relevant metrics and thresholds to report, (2) require the Navy to revise the plan as necessary based on that review, and (3) require the Navy, in the final authorization, to collect and report its acoustic measurements consistent with any revisions.

Response: NMFS reviewed the acoustic monitoring plan and clarified a few items in the Navy's application. In the final IHA, the Navy is required to conduct acoustic monitoring according to this slightly modified .

NMFS IHA Renewal Process

Comment: The Commission questioned whether the public notice provisions for IHA Renewals fully satisfy the public notice and comment provision in the MMPA and discussed the potential burden on reviewers of reviewing key documents and developing comments quickly. Additionally, the Commission recommended that NMFS use the IHA Renewal process sparingly and selectively for activities expected to have the lowest levels of impacts to marine mammals and that require less complex analysis.

Response: NMFS has taken a number of steps to ensure the public has adequate notice, time, and information to be able to comment effectively on IHA Renewals within the limitations of processing IHA applications efficiently. The **Federal Register** notice for the initial proposed IHA (84 FR 18809; May 2, 2019) previously identified the conditions under which a one-year Renewal IHA might be appropriate. This information is presented in the Request for Public Comments section of the initial proposed IHA and thus encourages submission of comments on the potential of a 1-year renewal as well as the initial IHA during the 30-day comment period. In addition, when we receive an application for a Renewal IHA, we publish a notice of the proposed IHA Renewal in the **Federal Register** and provide an additional 15 days for public comment, for a total of 45 days of public comment. We will also directly contact all commenters on the initial IHA by email, phone, or, if the commenter did not provide email or phone information, by postal service to provide them the opportunity to submit any additional comments on the proposed Renewal IHA.

NMFS also strives to ensure the public has access to key information needed to submit comments on a proposed IHA, whether an initial IHA or a Renewal IHA. The agency's web site includes information for all projects under consideration, including the application, references,

and other supporting documents. Each **Federal Register** notice also includes contact information in the event a commenter has questions or cannot find the information they seek.

Regarding the Commission's comment that Renewal IHAs should be limited to certain types of projects, NMFS has explained on its web site and in individual **Federal Register** notices that Renewal IHAs are appropriate where the continuing activities are identical, nearly identical, or a subset of the activities for which the initial 30-day comment period applied. Where the commenter has likely already reviewed and commented on the initial proposed IHA for these activities, the abbreviated additional comment period is sufficient for consideration of the results of the preliminary monitoring report and new information (if any) from the past year.

Adequate Opportunity to Consider Public Comments

Comment: The Commission claims that NMFS did not have sufficient time to review public comments or to revise the proposed IHA accordingly. The Commission recommended that NMFS (1) delay issuance of the Final IHA until it has thoroughly reviewed and assessed the Commission's recommendations and any comments from the public and revised the authorization accordingly and (2) take all steps necessary in the future to ensure that it publishes and finalizes IHAs far enough in advance of the planned start date of the proposed activities to ensure full consideration is given to comments received

Response: NMFS thanks the Commission for its concerns regarding the IHA process. NMFS had sufficient time and we thoroughly reviewed the comments received. We made all appropriate revisions to the final IHA.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the Navy's application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the

potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs;

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (e.g., physical and behavioral descriptions) may be found on NMFS' website (<https://www.fisheries.noaa.gov/find-species>).

Table 1 below lists all species with expected potential for occurrence in the project area and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2018). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS' SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Pacific and Alaska SARs (Carretta *et al.*, 2018). All values presented in Table 1 are the most recent available at the time of publication (draft SARs available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>).

Marine mammal species likelihood of occurrence (designated as “unlikely,” “potential” or “likely”) was determined through review of NMFS SARs, species-specific literature research, and SNI monitoring reports (Table 1). “Unlikely” means occurrence is not expected, “potential” means the species may occur or there is casual occurrence history, and “likely” means there is a strong possibility of or regular occurrence in the project area.

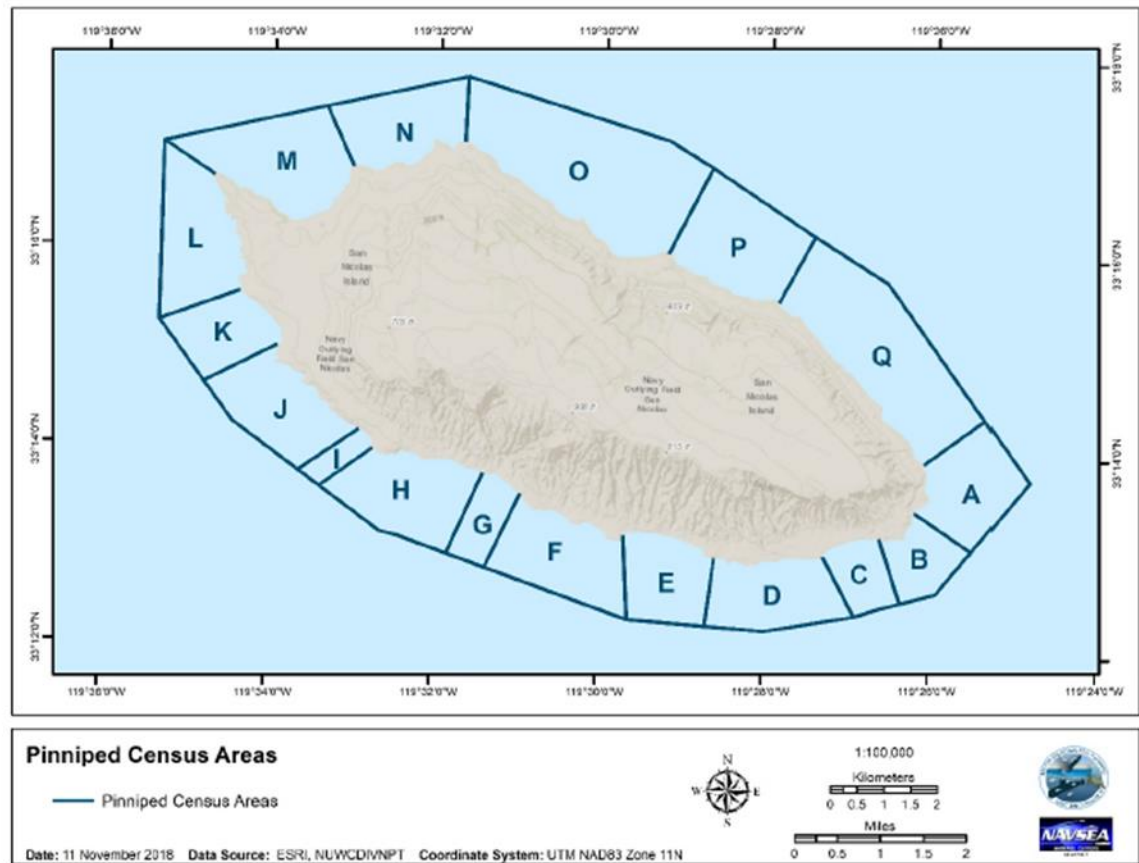
Table 1. Marine Mammals Occurrence in the Project Area.

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³	Occurrence
Order Carnivora – Superfamily Pinnipedia							
Family Otariidae (eared seals and sea lions)							
California sea lion	<i>Zalophus californianus</i>	U.S.	-, -, N	257,606 (N/A, 233,515, 2014)	14, 011	≥319	Likely
Northern Fur Seal	<i>Callorhinus ursinus</i>	CA	-, D, N	14,050 (N/A, 7,524, 2013)	451	1.8	Potential
Steller Sea Lion	<i>Eumetopias jubatus</i>	Eastern	T, D, Y	41,638 (see SAR, 41,638, 2015)	2,498	108	Unlikely
Guadalupe Fur Seal	<i>Arctocephalus philippii townsendi</i>	Mexico	T, D, Y	20,000 (N/A, 15,830, 2010)	542	≥3.2	Potential
Family Phocidae (earless seals)							
Harbor Seal	<i>Phoca vitulina</i>	CA	-, -, N	30,968 (N/A, 27,348, 2012)	1,641	43	Likely
Northern Elephant Seal	<i>Mirounga angustirostris</i>	CA Breeding	-, -, N	179,000 (N/A, 81,368, 2010)	4,882	8.8	Likely
¹ - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.							

2- NMFS marine mammal stock assessment reports online at: https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports . CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.	
3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.	
<i>NOTE - Italicized species are not expected to be taken or are authorized.</i>	

A detailed description of the species likely to be affected by the Navy's project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (84 FR 18809; May 2, 2019); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

Distribution of California sea lions, harbor seals, and harbor seals on SNI, as well as on the other Channel Islands, was conducted during the NMFS' Southwest Fisheries Science Center (SWFSC) July 2011-2015 survey. In 1987, the SWFSC began using aerial photography at the Channel Islands to census pinnipeds. Years later, the survey expanded to include all the Channel Islands in aerial surveys). July surveys are intended to census California sea lions after all pups have been born to monitor population trends and abundance of the U.S. population and to collect summer residence count-data for northern elephant seals and harbor seals (Lowry *et al.*, 20187b). The perimeter of SNI was divided into small area-coded units to describe intra-island distribution of pinnipeds as shown in Figure 1 below. We include Figure 1 here as a reference when describing some of the census data by Lowry *et al.* (2017b) in the *Estimated Take* section, to



Potential Effects of Specified Activities on Marine Mammals and their Habitat

Acoustic effects on marine mammals during the specified activity can occur from target and missile launch activities. The effects of airborne noise from the Navy's planned activities have the potential to result in Level B harassment of pinnipeds hauled out on SNI, which could cause a disruption of natural behavioral patterns such as flushing into the water. The **Federal Register** notice for the proposed IHA (84 FR 18809; May 2, 2019) included a discussion of the effects of anthropogenic noise on marine mammals; therefore, that information is not repeated here.

Impacts on marine mammal habitat are part of the consideration in making a finding of negligible impact on the species and stocks of marine mammals. Habitat includes, but is not necessarily limited to, rookeries, mating grounds, feeding areas, and areas of similar significance. We do not anticipate that the planned operations would result in any temporary or permanent effects on the habitats used by the marine mammals on SNI, including the food sources they use (*i.e.*, fish and invertebrates). While it is anticipated that the activity may result in marine mammals avoiding certain areas due to temporary ensonification, this impact to habitat is temporary and reversible and was considered in further detail earlier in this document, as behavioral modification. The main impact associated with the activity will be temporarily elevated noise levels and the associated direct effects on marine mammals. Overall, the launch activities are not expected to cause significant impacts or have permanent, adverse effects on pinniped habitats or on their foraging habitats and prey. These potential effects are discussed in detail in the **Federal Register** notice for the proposed IHA (84 FR 18809; May 2, 2019), therefore that information is not repeated here.

Estimated Take

This section provides an estimate of the number of incidental takes for authorization through this IHA, which will inform NMFS' negligible impact determination.

Harassment is the only type of take expected to result from these activities. For this military readiness activity, the MMPA defines "harassment" as (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns (and/or TTS, although only some missile launches have exceeded the level at which TTS onset might occur, particularly for phocids) for individual marine mammals resulting from exposure to airborne sounds from rocket and missile launch. Based on the nature of the activity, Level A harassment is neither anticipated nor authorized.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available

(e.g., previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the authorized take estimate.

Acoustic Thresholds

Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (e.g., frequency, predictability, duty cycle), the environment (e.g., bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. Generally, for in-air sounds, NMFS predicts that harbor seals exposed above received levels of 90 dB re 20 μ Pa (rms) will be behaviorally harassed, and other pinnipeds will be harassed when exposed above 100 dB re 20 μ Pa (rms). However, more recent data suggest that pinnipeds will be harassed when exposure is above 100 dB SEL (unweighted) (*Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III) Technical Report* (U.S. Department of the Navy, 2017). NMFS previously helped develop the Phase III criteria and has determined that the criteria and thresholds shown in Table 2 are appropriate to determine when Level B harassment by behavioral disturbance may occur as a result of exposure to airborne sound on SNI. This behavioral disturbance criterion was used to determine the areas that the Navy should monitor based on the sound levels recorded at the pinniped haulouts during launch events. This criterion is not being used to directly estimate the take, rather to assume areas within which pinnipeds hauled out on particular beaches may be harassed (based on the previous acoustic monitoring).

Table 2. Behavioral threshold for impulsive sound for pinnipeds.

Species	Level B harassment by behavior disturbance threshold
All pinniped species (in-air)	100 dB re 20 μ Pa ² s SEL (unweighted)

Thresholds have also been developed identifying the received level of in-air sound for the onset of TTS (no PTS is anticipated to occur) for pinnipeds and discussed previously in this document (U.S. Department of the Navy, 2017). The TTS/PTS threshold for pinnipeds (in-air) are repeated here (see Table 3 below).

Table 3. TTS/PTS thresholds for pinnipeds (in-air).

Group	Non-Impulsive		Impulsive			
	TTS Threshold SEL ^a (weighted)	PTS Threshold SEL ^a (weighted)	TTS Threshold SEL ^a (weighted)	TTS Threshold Peak SPL ^b (unweighted)	PTS Threshold SEL ^b (weighted)	PTS Threshold Peak SPL ^b (unweighted)
OA ^c	157	177	146	170	161	176
PA ^d	134	154	123	155	138	161

^aSEL thresholds are in dB re(20 μ Pa)²·s

^bSPL thresholds in dB 20 μ Pa in air

^cOA-Otariid in air (California sea lion)

^dPA-Phocid in air (harbor seal, northern elephant seal)

Ensonified Area

In-air sound propagation from missile launch sources at SNI had not been well studied prior to monitoring work during 2001–2007. During the 2001–2017 period, the strongest sounds originating from a missile in flight over the beaches at SNI were produced by Vandal (no longer launched from SNI) and Coyote launches, with the exception of one SM-2 launched in 2015 (see Table 6-3 of the application, but also Table 4 below). The range of sound levels recorded on SNI during Coyote launches were 128 dB re 20 μ Pa²·s SEL-f (115 dB SEL-A, 123 dB SEL-Mpa) closest to the launcher and ranged from 87 to 119 dB re 20 μ Pa²·s SEL-f (46 to 107 dB SEL-A, 60 to 114 dB SEL-Mpa weighted) at nearshore locations. These values demonstrate that the

sound levels are high enough to cause disturbance based on the behavioral thresholds (Table 2), but below the TTS thresholds (Table 3) during Coyote launches (most frequently launched missile on SNI). For additional information on sound levels please refer to the application.

Coyotes are launched from the inland Alpha Launch Complex so there would be no pinnipeds near the launcher. The pinnipeds closest to the Coyote launches are on the beaches (areas L and M) directly below the flight trajectory, for which the CPA distance is about 0.9 km. Stronger sounds were also recorded at the launcher, but sound levels were dependent on the size of the missile launched. Launches of smaller missiles typically occur from the Building 807 Complex near the beach where the closest pinniped haulouts (area L and portions of K) are located about 0.3 km from the CPA. Harbor seal haulouts (areas L and J) are located at least 1 km from the CPA from the Building 807 Complex. It is important to note that in recent years, harbor seals are not always present when Navy conducts their monitoring during launch events, and there have not been many places to observe harbor seals during the launches. There is not a constant occupation of harbor seals on haulouts and occupation is dependent on tides. Harbor seals tend to be more sensitive to visual cues as well and do not prefer beaches with California sea lions. Most of the beaches where harbor seals are hauled out, and which Navy has been able to monitor, occur in area O which is north of both the Alpha Launch Complex and Building 307 Complex and not in the trajectory of launches that occur from these sites.

The Navy will continue to conduct marine mammal and acoustic measurements during every launch event at three pinniped sites per launch event within areas K, L, M or O. As an example in 2017, the Navy conducted acoustic and marine mammal monitoring during their launch events at beaches with hauled out pinnipeds (see Navy's Table 2.2 from the 2017

monitoring report) in areas M and L (beaches of Dos Cove and Redeye Beach) and in area O (beaches of Pirates Cove and Phoca Reef).

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. Some pinnipeds that haul out on the western end of SNI are expected to be within the area where noise from launches exceeds 100 dB SEL. However, it is likely that far fewer pinnipeds occur within the area where sounds from smaller launch missiles, such as the BQM missiles, reach above 100 dB SEL and none of the recorded SELs appear to be sufficiently strong to induce TTS. Previous monitoring during 2001–2017 showed that SELs above 100 dB re 20 $\mu\text{Pa}^2\cdot\text{s}$ were measured in pinniped areas K, L, and M (Cormorant Rock to Red Eye Beach); therefore, these are the areas that the Navy focuses their marine mammal monitoring on. In more recent years, Navy started monitoring area O (Phoca Reef and Pirates Cove) as harbor seals are hauling out here now and not as frequently in areas K, L, and M. Refer to Figure 1 for a map of these areas.

California sea lions

During the July 2011-2015 census, California sea lion counts on SNI averaged 52,634.8 individuals per year (SD = 9,899.0) (Lowry *et al.*, 2017b). Between 2001 and 2017, a maximum of 2,807 instances of take of California sea lions by Level B harassment were estimated to have been potentially harassed in a single monitoring year incidental to missile launches at SNI (Burke 2017; Holst *et al.* 2010; Holst *et al.* 2008; Holst *et al.* 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012). From the 2015-2017 monitoring seasons, there was a total of 4,940 instances of take of California sea lions by Level B harassment (702 sea lions in 2017, 1431 sea lions in

2016, and 2,807 sea lions in 2015) over 18 launches. Of these results, an average of 274.44 instances of take of sea lions by Level B harassment per launch occurred.

Harbor Seals

During the July 2011-2015 census, in July 2015 when all the Channel Islands were surveyed for harbor seals, 259 seals were counted at SNI (18.9 percent) (Lowry *et al.*, 2017b). Harbor seals are not uniformly distributed around the perimeter of SNI. During the July 2011-2015 census most harbor seals were mostly found in areas L, N, and Q on SNI (see Figure 1 for a map of these areas). However, in recent years, the Navy has indicated that harbor seals are mostly found and monitored in area O, just north of the launch azimuths on the northern side of the island so that is where they conduct their acoustic and marine mammal monitoring for harbor seals. Between 2001 and 2017, a maximum of 31 instances of take of harbor seals by Level B harassment were estimated in a single monitoring year incidental to missile launches at SNI (Burke 2017; Holst *et al.* 2010; Holst *et al.* 2008; Holst *et al.* 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012). From the 2015-2017 monitoring seasons, a total of 43 instances of take of harbor seals (8 in 2017, 4 in 2016, and 31 in 2015) by Level B harassment occurred over 18 total launches. Of these results, an average of 2.39 instances of take of harbor seals by Level B harassment per launch occurred. These harbor seals were mostly observed in area O (Phoca Reef and Pirates Cove).

Northern elephant seals

During the July 2011-2015 census, in 2015, when all islands were surveyed for elephant seals, 932 elephant seals were found on SNI (20.5 percent of total). Northern elephant seals were not uniformly distributed around the perimeter of SNI. Area K at SNI had the most elephant seals on island (Lowry *et al.*, 2017b). From the 2015-2017 monitoring seasons, a total of 11

instances of take of elephant seals by Level B harassment occurred (0 in 2017, 1 in 2016, 10 in 2015) of the 100 animals that were observed. Overall, from the 2015-2017 monitoring seasons, 11 instances of take of northern elephant seals by Level B harassment occurred over 18 launch events for an average of 0.61 per launch event.

Take Calculation and Estimation

The NDAA (Pub. L. 103-136) removed the “small numbers” and “specified geographical region” limitations indicated above and amended the definition of “harassment” as it applies to a “military readiness activity” to read as follows (section 3(18)(B) of the MMPA): (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered (Level B Harassment).

It is difficult to derive unequivocal criteria to identify situations in which launch sounds are expected to cause significant disturbance responses to pinnipeds hauled out on SNI. One or more pinnipeds blinking its eyes, lifting or turning its head, or moving a few feet along the beach as a result of a human activity is not considered a “take” under the MMPA definition of harassment. Therefore, the criteria used by the Navy to determine if an animal is affected by a launch event and is taken by Level B harassment is as follows:

1. Pinnipeds that are exposed to launch sounds strong enough to cause TTS; or

2. Pinnipeds that leave the haulout site, or exhibit prolonged movement (> 10 m) or prolonged behavioral changes (such as pups separated from mothers) relative to their behavior immediately prior to the launch.

Here we describe how the information provided above is brought together to produce a quantitative take estimate. Previously, take estimates were calculated based on areas ensonified above the behavioral disturbance criterion and the estimated numbers of pinnipeds exposed to at or above that level. However, for this IHA we rely on the past three seasons of monitoring of pinnipeds to determine the take estimate.

For California sea lions, take estimates were derived from three monitoring seasons (2015 to 2017) where an average of 274.44 instances of take of sea lions by Level B harassment occurred per launch event. Therefore, 275 sea lions was then multiplied by 40 launch events, for a conservative take estimate of 11,000 instances of take for California sea lions by Level B harassment (Table 4). This estimate is conservative because the Navy has not conducted more than 25 launch events (although authorized for more) in a given year since 2001.

For harbor seals, this take estimate is a change from the proposed IHA (84 FR 18809; May 2, 2019). The take estimate was revised from 120 to 480 harbor seal instances of take by Level B harassment. A total of 12 takes were derived from the 2016 and 2017 monitoring seasons and multiplied by 40 launch events for a total of 480 instances of take by Level B harassment (Table 4).

For northern elephant seals, take estimates were derived from three monitoring seasons (2015 to 2017) where an average of 0.61 instances of take of northern elephant seals by Level B harassment occurred per launch event. Therefore, one northern elephant seal was then multiplied by 40 launch events for a conservative take estimate of 40 instances of take of northern elephant

seals by Level B harassment (Table 4). Generally, northern elephant seals do not react to launch events other than simple alerting responses such as raising their heads or temporarily going from sleeping to being awake; however, to account for the rare instances where they have reacted, the Navy considered that some northern elephant seals that could be taken during launch events.

Table 4. Authorized Level B harassment take estimates for pinnipeds on SNI.

Species	Authorized Level B harassment	Stock Abundance (percent taken by Level B harassment)
California sea lion	11,000	257,606 (4.27 percent)
Harbor seal	480	30,968 (less than 2 percent)
Northern elephant seal	40	179,000 (less than 1 percent)

Mitigation

In order to issue an IHA under Section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)). The NDAA for FY 2004 (Pub. L. 108–136) amended the MMPA as it relates to military readiness activities and the incidental take authorization process such that “least practicable impact” shall

include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) the manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Personnel Mitigation

Personnel will not enter pinniped haulouts. Personnel will be adjacent to pinniped haulouts below the predicted missile path for two hours prior to a launch only for monitoring purposes.

Launch Mitigation

Missiles will not cross over pinniped haulouts at elevations less than 305 m (1,000 ft). Launches at night will be limited. Launches will be avoided during harbor seal pupping season (February through April) unless constrained by mission objectives. Launches will be limited

during the pupping season for northern elephant seal (January through February) and California sea lion (June through July) unless constrained by mission objectives or certain other factors. It is vital that the Navy effectively executes readiness activities to ensure naval forces can effectively execute military operations. The ability to schedule and locate training and testing without excessively burdensome restrictions within the Study Area is crucial to ensure those activities are practical, effective, and safe to execute. To meet its military readiness requirements (mission objectives), the Navy requires consistent access to a variety of realistic, tactically-relevant oceanographic and environmental conditions (*e.g.*, bathymetry, topography, surface fronts, and variations in sea surface temperature), and sea space and airspace that is large enough or situated in a way that allows activities to be completed without physical or logistical obstructions, in order to achieve the highest skill proficiency and most accurate testing results possible in areas analogous to where the military operates.

Aircraft Operation Mitigation

All aircraft and helicopter flight paths must maintain a minimum distance of 1,000 ft (305 m) from recognized seal haulouts and rookeries), except in emergencies.

Based on our evaluation of the Navy's mitigation measures, as well as other measures considered by NMFS, NMFS has determined that the mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Non-authorized Take Prohibited

If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized takes are met, the Navy must consult with NMFS before the next launch event.

Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;

- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

The Navy will conduct suite of monitoring measures on SNI to document impacts of the launch events on marine mammals. These monitoring measures are described below.

Visual and Video Camera Monitoring

The Navy proposes to conduct marine mammal monitoring during launches from SNI, using visual monitoring as well as simultaneous autonomous audio recording of launch sounds and video recording of pinniped behavior. The monitoring (all land-based) will provide data required to characterize the extent and nature of “taking.” In particular, it will provide the information needed to document the nature, frequency, occurrence, and duration of any changes in pinniped behavior that might result from the missile launches, including the occurrence of stampedes.

Visual monitoring, before and after launches, is a scan of the haulout beaches to count pinnipeds over a wider FOV than can be captured by a stationary video camera. This is typically done over a 15-30 minute period. Visual monitoring is conducted while the equipment is being set up and broken down for video and acoustic monitoring which is described in greater detail below. Prior to a launch event, Navy personnel will make observations of the monitored haulout and record the numbers and types of pinnipeds observed, noting the information on field data sheets. After a launch event, Navy personnel will return to the monitored haulout as soon as it is safe, and record the numbers and types of pinnipeds that remain on the haulout sites and any notable changes.

Video monitoring is conducted by recording continuously from a minimum of 2 hours before the event to approximately 1 hour after the event.

These video and audio records will be used to document pinniped responses to the launches. This will include the following components:

- Identify and document any change in behavior or movements that may occur at the time of the launch;
- Compare received levels of launch sound with pinniped responses, based on acoustic and behavioral data from up to three monitoring sites at different distances from the launch site and missile path during each launch; from the data accumulated across a series of launches, to attempt to establish the “dose-response” relationship for launch sounds under different launch conditions if possible;
- Ascertain periods or launch conditions when pinnipeds are most and least responsive to launch activities, and
- Document take by harassment.

The launch monitoring program will include remote video recordings before, during, and after launches when pinnipeds are present in the area of potential impact, as well as visual assessment by trained observers before and after the launch. Remote cameras are essential during launches because safety rules prevent personnel from being present in most of the areas of interest. In addition, video techniques will allow simultaneous “observations” at up to three different locations, and will provide a permanent record that can be reviewed in detail. During some launches, the use of video methods may allow observations of up to three pinniped species during the same launch, though in general one or two species will be recorded.

The Navy will seek to obtain video and audio records from up to three locations at different distances from the flight path of each missile launched from SNI. The Navy will try and reduce factors that limit recordings. On occasion, paired video and audio data were obtained from less than three sites during some launches, due to various potential problems with video and acoustic recorders, timing of remote recordings when launches are delayed, absence of pinnipeds from some locations at some times, etc. Corresponding data is available from the previous monitoring periods (2001–2018).

Two different types of cameras will be available for use in obtaining video data simultaneously from three sites:

(1) Small handheld high-definition video cameras on photographic tripods will be set up by Navy personnel at various locations on the day of a launch, with the video data being accessible following the launch. Recording duration varies between 300 and 600 minutes following initiation of record mode on these cameras, depending upon battery life, external memory card availability and other factors. The digital data is later copied to DVD-ROMs for subsequent viewing and analysis; and

(2) Portable Forward-Looking Infrared Radiometer (FLIR) video cameras will be set up by the Navy for nighttime launches. These cameras have a recording duration of approximately 300 minutes from initiation of the record mode. The FLIR video data will be accessible following the launch. The digital data will later be copied to DVD-ROMs for subsequent viewing and analysis.

Before each launch, Navy personnel will set up or activate up to three of the available video cameras such that they overlook chosen haulout sites. Placement will be such that disturbance to the pinnipeds is minimized, and each camera will be set to record a focal subgroup

of sea lions or harbor seals within the haulout aggregation for the maximum recording time permitted by the videotape capacity. The entire haulout aggregation on a given beach will not be recorded during some launches, as the wide-angle view necessary to encompass an entire beach would not allow detailed behavioral analyses (Holst *et al.*, 2005a; Holst *et al.*, 2008). It will be more effective to obtain a higher-magnification view of a sample of the animals on the beach. Prior to selecting a focal animal group, a pan of the entire haulout beach and surrounding area will be made in order to document the total number of animals in the area.

Following each launch, video recordings will continue for at least 15 minutes and up to several hours. Greater post-launch time intervals are not advisable as storms and other events may alter the composition of pinniped haulout groups independent of launch events.

Video data will be transferred to DVD-ROMs. A trained biologist will review and code the data from the video data as they are played back to a monitor (Holst *et al.*, 2005a; Holst *et al.*, 2008). The variables transcribed from the videos, or recorded directly at the beach sites, will include:

- Composition of the focal subgroup of pinnipeds (approximate numbers and sexes of each age class);
- Description and timing of disruptive event (launch); this will include documenting the occurrence of launch, whether launch noise is evident on audio channel, and duration of audibility; and
- Movements of pinnipeds, including number and proportion moving, direction and distance moved, pace of movement (slow or vigorous). In addition, the following variables concerning the circumstances of the observations will also be recorded from the videotape or from direct observations at the site:

- Study location;
- Local time;
- Weather (including an estimate of wind strength and direction, and presence of precipitation); and
- Tide state (Exact times for local high and low tides will be determined by consulting relevant tide tables for the day of the launch).

Acoustic Monitoring

Acoustical recordings will be obtained during each monitored launch. These recordings will be suitable for quantitative analysis of the levels and characteristics of the received launch sounds. In addition to providing information on the magnitude, characteristics, and duration of sounds to which pinnipeds are exposed during each launch, these acoustic data will be combined with the pinniped behavioral data to determine if there is a “dose-response” relationship between received sound levels and pinniped behavioral reactions. The Navy will use up to four autonomous audio recorders to make acoustical measurements. During each launch, these will be located as close as practical to monitored pinniped haulout sites and near the launch pad itself. The monitored haulout sites will typically include one site as close as possible to the missile’s planned flight path and one or two locations farther from the flight path within the area of potential impact with pinnipeds present. Autonomous Terrestrial Acoustic Recorders (ATARs) will be deployed at the recording locations on the launch day well before the launch time, and will be retrieved later the same day.

During each launch, data on the type and trajectory of the missile will be documented. From these records, the CPA of the missile to the microphone will be determined, along with its altitude above the shoreline. These data will be important in comparing acoustic data with those

from other launches. Other factors to be considered will include wind speed and direction and launch characteristics (*e.g.*, low- vs. high-angle launch). These analyses will include data from previous and ongoing monitoring work (Burke 2017; Holst *et al.*, 2010; Holst *et al.*, 2005a; Holst *et al.*, 2008; Holst *et al.*, 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012), as well as measurements to be obtained during launches under this IHA.

Reporting

A technical report will be submitted to the NMFS' Office of Protected Resources within 90 days from the date the IHA expires. This report will provide full documentation of methods, results, and interpretation pertaining to all monitoring tasks for launches activities at SNI that are covered under this IHA.

The technical report containing the following information: species present, number(s), general behavior, presence of pups, age class, gender, numbers of pinnipeds present on the haulout prior to commencement of the launch, numbers of pinnipeds that responded at a level that would be considered harassment length of time(s) pinnipeds remained off the haulout (for pinnipeds that flushed), and any behavioral responses by pinnipeds that were likely in response to the specified activities. Launch reports would also include date(s) and time(s) of each launch; date(s) and location(s) of marine mammal monitoring, and environmental conditions including: visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction. If a dead or seriously injured pinniped is found during post-launch monitoring, the incident must be reported to the NMFS Office of Protected Resources and the NMFS' West Coast Regional Stranding Coordinator immediately. Results of acoustic monitoring, including the recorded sound levels associated with the launch and/or sonic boom (if applicable) would also be included in the report.

In the unanticipated event that any cases of pinniped mortality are judged to result from launch activities at any time during the period covered by this IHA, this will be reported to NMFS immediately.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 4, given that the anticipated effects of this activity on these different marine mammal species are expected to be similar. Activities associated with the proposed activities, as outlined

previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment only, from airborne sounds of target and missile launch events. Based on the best available information, including monitoring reports from similar activities that have been authorized by NMFS, behavioral responses will likely be limited behavioral reactions such as alerting to the noise, with some animals possibly moving toward or entering the water, depending on the species and the intensity of the launch noise. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Given the launch acceleration and flight speed of the missiles, most launch events are of extremely short duration. Strong launch sounds are typically detectable near the beaches at western SNI for no more than a few seconds per launch (Holst *et al.*, 2010; Holst *et al.*, 2005a; Holst *et al.*, 2008; Holst *et al.*, 2005b). Pinnipids hauled out on beaches where missiles fly over launched from the Alpha Launch Complex routinely haul out and continue to use these beaches in large numbers. At the Building 807 Launch Complex few pinnipeds are known to haul out on the shoreline immediately adjacent to this launch site. Thus, even repeated instances of Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in fitness to those individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment would be reduced to the level of least practicable adverse impact through use of mitigation measures described above.

If a marine mammal responds to a stimulus by changing its behavior (*e.g.*, through relatively minor changes in locomotion direction/speed), the response may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding

area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (*e.g.*, Lusseau and Bejder, 2007; Weilgart, 2007). Flushing of pinnipeds into the water has the potential to result in mother-pup separation, or could result in a stampede, either of which could potentially result in serious injury or mortality. However, based on the best available information, including reports from almost 20 years of marine mammal monitoring during launch events, no serious injury or mortality of marine mammals is anticipated as a result of the proposed activities.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No injury, serious injury, or mortality are anticipated or authorized;
- The anticipated incidences of Level B harassment are expected to consist of temporary modifications in behavior (*i.e.*, movements of more than 10 m and occasional flushing into the water with return to haulouts), which are not expected to adversely affect the fitness of any individuals;
- The proposed activities are expected to result in no long-term changes in the use by pinnipeds of rookeries and haulouts in the project area, based on nearly 20 years of monitoring data; and
- The presumed efficacy of planned mitigation measures in reducing the effects of the specified activity to the level of least practicable adverse impact.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS finds that the total marine mammal take

from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an incidental harassment authorization) with respect to potential impacts on the human environment. This action is consistent with categories of activities identified in Categorical Exclusion B4 (incidental harassment authorizations with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

Endangered Species Act (ESA)

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in

the destruction or adverse modification of designated critical habitat. No incidental take of ESA-listed species is authorized or expected to result from this activity. Therefore, formal consultation under section 7 of the ESA was not required for this action.

Authorization

As a result of these determinations, NMFS has issued an IHA to the Navy for conducting rocket and missile launch events on SNI provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: June 14, 2019.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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